REMARKS

The Office Action mailed on February 24, 2004 (the "Office Action") has been carefully reviewed as have the references relied on by the Examiner in the Office Action. Reconsideration of this application in view of the above amendments is respectfully requested.

These remarks are set forth in substantially the same order as the Examiner's comments in the Office Action.

Claim Objections

First, the Examiner objected to claims 29, 33, and 37 as duplicating earlier claims. Each of claims 29, 33 and 37 has been amended to depend from another claim. It is believed that the amendments overcome the Examiner's objections.

Claim Rejections – 35 USC § 102

Next, claims 1-37 were rejected under 35 U.S.C. 102 (b) based upon a public use or sale of the invention. The Examiner referred to the Supplemental Information Disclosure Statement filed by Applicants on December 2, 2003 (the "Supp. IDS") and pointed out that all of the jobs referred to in the Supp. IDS involved treating drilled zones that were losing well and formation fluids. The Examiner stated:

> Specifically, the jobs of 12/11/98, 01/00, 08/07/00, and 02/03/01 recite a method of discovering, diagnosing and correcting formation integrity problems in successively drilled subterranean well bore intervals comprising the steps of: (a) drilling a first well bore interval; (b) determining if well bore fluid is being lost from each drilled well bore interval or if pressurized formation fluid is flowing into each well bore interval, or both; (c) determining the pressure containment integrity of each well bore interval; (d) if it is determined that well bore fluid is being lost from a well bore interval or pressurized formation fluid is flowing into said well bore interval, or both, in step (b) or if it is determined that said pressure containment integrity is inadequate in step (c), providing a pumpable sealing composition for sealing said drilled well bore interval to prevent well bore fluid outflow therefrom, to prevent pressurized formation fluid inflow thereinto or to increase the pressure containment integrity of said drilled well bore interval; (e) pumping said sealing composition into said drilled well bore interval to cause said

drilled well bore interval to be sealed or the pressure containment integrity of said drilled well bore interval to be increased, or both; (f) drilling a second wellbore interval; and (g) repeating steps (b), (c), (d) and (e) for the second drilled well bore interval. It is noted that the applicant asserts that the methods used in these jobs did not include the drilling of successive intervals. The examiner would like to point to the first paragraph of page 11 where it is stated that another zone lower in the hole needed treatment and steps (b) through (e) were repeated so that drilling could be resumed and the well could subsequently be drilled to total depth.

Contrary to the assertion of the Examiner, the jobs set forth in the Supp. IDS did not entail the overall method of discovering, diagnosing and correcting formation integrity problems in successively drilled subterranean well bore intervals. For example, the jobs did not entail drilling a first well bore interval, determining if a formation integrity problem exists in the first drilled well bore interval, correcting the problem(s), if necessary, in the first drilled well bore interval in accordance with the invention as claimed (e.g., steps (b) through (e) of independent claim 1), drilling a second well bore interval, determining if a formation integrity problem exists in the second drilled well bore interval, and correcting the problem, if necessary, in the second well bore interval in accordance with the invention as claimed. Rather, the treatments were carried out in only one drilled section of the well. The inventive method of discovering, diagnosing and correcting formation integrity problems in successively drilled subterranean well bore intervals and the advantages thereof are clearly set forth in the present specification.

As to the Examiner's reference to the jobs described in paragraph (I) of the Supp. IDS (beginning on page 9), particularly the Examiner's reference to the first paragraph on page 11, the Examiner misconstrued what is stated by Applicants in the Supp. IDS. It is true that it was determined that another zone lower in the hole needed treatment and that the inventive remedial steps were repeated with respect to this other zone so that drilling could be resumed. However, the subsequent treatment was carried out in the same drilled section of the hole. It was only after it was determined that the desired increase in the well bore pressure containment integrity

(WPCI) of the drilled section of the hole had been achieved that further drilling of the hole was resumed by the customer. The Supp. IDS explains this further on page 14, where it is stated: "[T]he treatments described in job (I) above were carried out in only one drilled section of the well." "The steps of repeatedly carrying out formation pressure integrity tests and treating if necessary in successively drilled intervals; e.g., as the hole was drilled deeper, was not carried out in the above jobs."

In order for a prior use/sale to be prior art under 35 U.S.C. § 102, it must meet all of the limitations of the claims. "[T]he court should determine whether the subject of the barring activity met each of the limitations of the claim, and thus was an embodiment of the claimed invention." *Dana Corp. v. American Axle & Mfg., Inc.*, 279 F. 3d. 1372, 1375-76, 61 U.S.P.Q.2d 1055, 1058 (Fed. Cir. 1999). In other words, it must be an embodiment of the claimed invention that was publicly used or offered for sale prior to one year before the application was filed.

Claims 1, 3-13, 15, 16, 18-20, 22, 23, 30 and 32-37 are all limited to a method of discovering, diagnosing and correcting formation integrity problems in successively drilled subterranean well bore intervals as described above. As a result, the jobs described in the Supp. IDS do not represent an embodiment of the invention as claimed by these claims. Accordingly, on this basis, the Examiner's rejection of claims 1, 3-13, 15, 16, 18-20, 22, 23, 30 and 32-37 under 35 U.S.C. § 102 should be withdrawn.

Further, independent claim 11 and dependent claims 22, 23, 26, 33 and 36 each call for analyzing well logs and other data in real time, and transmitting the data to a remote location wherein a specific sealing composition is determined. These steps were not included in the jobs described in the Supp. IDS. Thus, on this basis, the Examiner's rejection of independent claim 11 and dependent claims 22, 23, 26, 33 and 36 under 35 U.S.C. § 102 should also be withdrawn.

In connection with the Examiner's rejection of the claims under 35 U.S.C. § 102, the Examiner also stated the following:

> The jobs were performed for customers that depended on the treatments to save the wells and realize economic benefits, and would consequently not be considered experimental in nature since they were performed in real time and in a live drilling environment. Therefore, in view of the fact the claimed methods were performed for customers more than one year prior to the filing of the application, it is apparent to the office that the invention was used in, and known to, the public more than one year ago.

As noted above, claims 1, 3-13, 15, 16, 18-20, 22, 23, 26, 30 and 32-37 include one or more distinctive limitations that were not included in the jobs described in the Supp. IDS. Accordingly, even if the jobs constitute prior art with respect to the claims, the rejection under 35 U.S.C. § 102 of claims 1, 3-13, 15, 16, 18-20, 22, 23, 26, 30 and 32-37should be withdrawn.

However, it is submitted that the jobs referred to in the Supp. IDS fall within the experimental use exception to the public use/sale bar created by 35 U.S.C. § 102. As a result, the rejection under 35 U.S.C. § 102 should be withdrawn with respect to all of the claims. As described in the Supp. IDS, the jobs carried out in January of 2000 and described in paragraph (I) were the first jobs that provided enough treatment and shoe and open-hole data (via formal leak-off and formation integrity tests conducted) to carry out a credible post-job analysis that included recorded pressure versus time and recorded pressure versus volume-rate curves. In these jobs, the step of determining the WPCI in the well bore interval prior to pumping the sealing composition into the interval by increasing the density of or pressure exerted on the well bore fluid in the interval to an equivalent well bore fluid weight greater than or equal to the maximum hydrostatic pressure and friction pressure level to be exerted in the interval to determine if leak off occurs and if the WPCI in the interval is inadequate was carried out for the first time. Nevertheless, despite such an analysis and the fact that it showed that a significant increase in the WPCI above the measured fracture gradient had been demonstrated, many in the company (the assignee of the

present application) were not convinced that a viable invention had been conceived and called the increase in WPCI a fluke (see the last paragraph beginning on page 11 and extending to page 12). Formal and credible evidence that the WPCI, expressed in ppge, can be increased above the natural fracture gradient of the formation in a variety of well and formation conditions and in connection with different types of drilling mud was neither fully accepted and appreciated by company nor presented to the public until after February 25, 2001 (the "Critical Date").

The company ultimately confirmed that the inventive treatment could be successfully applied in typical ranges of well conditions and create seals that could change the WPCI of relevant exposed formations to a value higher than the natural fracture gradient of the formation by a technology project carried out by the company's "rock mechanics" scientists. This project, initiated in the spring of 2002 (after the Critical Date), led to management approval to further develop the technology and plan a commercialization program relating thereto. Accordingly, it is submitted that the actions carried out prior to the Critical Date fall within the experimental use exception.

Thus, the Examiner's rejection of claims 1, 3-13, 15, 16, 18-20, 22, 23-30 and 32-37 under 35 U.S.C. § 102 should be withdrawn.

Claim Rejections – 35 USC § 103

The Examiner rejected claims 1-23, 25-30, 33, and 35-37 under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 6,189,612 B1 to Ward in view of U.S. Patent No. 5,913,364 to Sweatman. U.S. Patent No. 6,189,612 B1 to Ward, hereinafter referred to as *Ward*, discloses a subsurface measurement system and process for improved drilling, control and production. U.S. Patent No. 5,913,364 to Sweatman, hereinafter referred to as *Sweatman*, discloses a method of sealing a subterranean zone.

It is submitted that the Examiner's rejection of the claims under 35 U.S.C. § 103 is improper. Specifically, the Examiner has misconstrued the teachings of the primary reference,

Ward. Further, the requisite suggestion to combine *Ward* and *Sweatman*, as asserted by the Examiner, is lacking. As a result, a prima facie case of obviousness has not been established.

First, the Examiner has misconstrued the teaching of the primary reference, *Ward.* For example, the Examiner suggests that col. 8, lines 1-42 of *Ward* teaches circulating a well bore fluid to determine if the quantity of well bore fluid being circulated decreases due to well bore fluid outflow from the drilled well bore interval or increases due to pressurized formation fluid inflow into the well bore interval, as required by step (b) of amended independent claims 1 and 30. *Ward* does not teach or suggest this limitation. The Enhance Leak-off Test, Pressure Integrity Test and Formation Integrity Test taught in *Ward* are methods to determine the pressure containment integrity, as may be required by step (c) of claims 1 and 30 of the instant invention, not step (b) of the claims. The *Ward* tests do not involve **circulating a well bore fluid** as does claim step (b) of the instant invention. See *Ward,* col. 8, lines 44-49, where the well is first shut in and circulation is resumed only **after** running the tests. Neither *Ward* nor *Sweatman* discloses or suggests drilling a first well bore interval, circulating a well bore fluid through the well bore interval for a period of time sufficient to determine if the quantity of fluid being circulated decreases due to well bore fluid outflow from the well bore interval or increases due to pressurized formation fluid inflow into the well bore interval, followed by determining the pressure containment integrity of the drilled well bore interval, and finally followed by the claimed treatment steps as required, for example, by amended independent claims 1 and 30. Further, neither *Ward* nor *Sweatman* discloses or suggests determining the pressure containment integrity of a drilled well bore interval in connection with the overall method claimed by Applicants by increasing the density of or pressure exerted on a well bore fluid in the drilled well bore interval to an equivalent well bore fluid weight greater than or equal to the maximum

hydrostatic pressure and friction pressure level to be exerted in said drilled well bore interval to determine if leak off occurs and the pressure containment integrity of the drilled well bore interval is inadequate, as called for by dependent claim 5, for example. The cited art does not establish a *prima facie* case of obviousness. As such, Applicants submit that amended independent claims 1 and 30 together with the claims depending therefrom are patentable over *Ward* in view of *Sweatman.*

Amended independent claim 11 and dependent claims 22, 23, 26, 33 and 36 include the step of transmitting all real time data collected to a **remote location** wherein a specific treatment using a specific pumpable sealing composition is determined. The Examiner cites *Ward,* col. 5, lines 32-34, as disclosing such a step. However, the term "remote" in *Ward* refers to **remote communication** of the measurements recorded down hole **to the surface** using mud pulse telemetry. The mud-pulse telemetry allows pressure-test data to be transmitted to the surface in real time, however it cannot be construed as transmitting real time data to a remote location as intended by Applicants' claims. Nor would anyone skilled in the art consider, for example, that the instantly claimed phrase "real time data is transmitted to a remote location wherein a specific treatment using a specific sealing composition is determined" includes sending down hole data to the surface as in *Ward.* The specification clearly describes in paragraph 28 the meaning and advantages of sending real time data to a remote location for analysis. Since neither reference teaches or suggests transmitting real time data to a remote location, Applicants submit that amended independent claim 11 and dependent claims 12-20 as well as dependent claims 22, 23, 26, 33 and 36 are patentable over *Ward* in view of *Sweatman.*

The Examiner did not find independent claim 24 and dependent claims 31, 32 and 34 obvious under 35 U.S.C. § 103.

Accordingly, the Examiner's rejection of the claims under 35 U.S.C. § 103 should also be withdrawn.

CONCLUSION

In view of the above amendments and remarks, Applicants submit that the Examiner's rejections of the claims are improper. Remaining claims 1, 3-13, 15, 16, 18-20, 22-30 and 32-37 are in condition for allowance, and such action is respectfully requested.

This is intended to be a complete response to the Office Action mailed on February 24, 2004.

Respectfully submitted,

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